



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2021-0515; Project Identifier AD-2021-00191-E]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for all Pratt & Whitney PW1500G and PW1900G series turbofan engines with a certain high-pressure turbine (HPT) 1st-stage hub or HPT rotor 1st-stage blade retaining plate installed. This proposed AD was prompted by a report from the manufacturer who determined that the HPT 1st-stage hub and HPT rotor 1st-stage blade retaining plate fail to meet the published life-cycle limits for each part. This proposed AD would require removal and replacement of the HPT 1st-stage hub and HPT rotor 1st-stage blade retaining plate prior to reaching certain cycle limits. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <https://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: (202) 493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Pratt & Whitney, 400 Main Street, East Hartford, CT 06118; phone: (800) 565-0140; fax: (860) 565-5442; email: help24@pw.utc.com; website: <https://fleetcare.pw.utc.com>. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (781) 238-7759.

Examining the AD Docket

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0515; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, any comments received, and other information. The street address for Docket Operations is listed above.

FOR FURTHER INFORMATION CONTACT: Mark Taylor, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7229; fax: (781) 238-7199; email: Mark.Taylor@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under ADDRESSES. Include “Docket No. FAA-2021-0515; Project Identifier AD-2021-00191-E” at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to <https://www.regulations.gov>, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this NPRM.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to Mark Taylor, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The FAA received a report from the manufacturer, who determined after recalculating life limits using a thermal match model and other life-calculation methodology updates, the HPT 1st-stage hub and HPT rotor 1st-stage blade retaining plate failed to meet the published life-cycle limits for each part. This condition, if not addressed, could result in the release of the HPT 1st-stage hub or HPT rotor 1st-stage blade retaining plate, damage to the engine, and damage to the aircraft.

FAA’s Determination

The FAA is issuing this NPRM after determining that the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Related Service Information

The FAA reviewed Pratt & Whitney Service Bulletin (SB) PW1000G-A-72-00-0115-00B-930A-D, Issue No. 001, dated April 26, 2021, and Pratt & Whitney SB PW1000G-A-72-00-0168-00A-930A-D, Issue No. 001, dated April 26, 2021. These SBs describe procedures for removing and replacing the HPT 1st-stage hub and HPT rotor 1st-stage blade retaining plate.

Proposed AD Requirements in this NPRM

This proposed AD would require removal and replacement of the HPT 1st-stage hub and HPT rotor 1st-stage blade retaining plate prior to reaching certain cycle limits.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 88 engines installed on airplanes of U.S. registry. The FAA estimates that in most cases the affected HPT 1st-stage hub and the affected HPT 1st-stage blade retaining plate will both be replaced during the same disassembly of the engine. This cost estimate therefore reflects the cost of replacing both parts during the same engine disassembly.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Replace HPT 1st-stage hub and HPT rotor 1st-stage blade retaining plate (pro-rated part cost)	300 work-hours x \$85 per hour = \$25,500	\$86,252	\$111,752	\$9,834,176

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Would not affect intrastate aviation in Alaska, and
- (3) Would not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

- 2. The FAA amends § 39.13 by adding the following new airworthiness directive:

Pratt & Whitney: Docket No. FAA-2021-0515; Project Identifier AD-2021-00191-E.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to Pratt & Whitney PW1519G, PW1521G, PW1521G-3, PW1521GA, PW1524G, PW1524G-3, PW1525G, PW1525G-3, PW1919G, PW1921G, PW1922G, PW1923G, and PW1923G-A model turbofan engines with a high-pressure turbine (HPT) 1st-stage hub, part number (P/N) 30G5701, or an HPT rotor 1st-stage blade retaining plate, P/N 30G1692, installed.

(d) Subject

Joint Aircraft System Component (JASC) Code 7250, Turbine Section.

(e) Unsafe Condition

This AD was prompted by a report from the manufacturer who determined that the HPT 1st-stage hub and HPT rotor 1st-stage blade retaining plate fail to meet the published life-cycle limits for each part. The FAA is issuing this AD to prevent failure of the HPT 1st-stage hub or HPT rotor 1st-stage blade retaining plate. The unsafe condition, if not addressed, could result in the release of the HPT 1st-stage hub or HPT rotor 1st-stage blade retaining plate, damage to the engine, and damage to the aircraft.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

(1) For PW1519G, PW1521G, PW1521G-3, PW1521GA, PW1524G, and PW1524G-3 model turbofan engines:

(i) For an affected HPT 1st-stage hub and an affected HPT rotor 1st-stage blade retaining plate with 3,000 cycles since new (CSN) or fewer on the effective date of this AD, before the affected part exceeds 4,700 CSN, remove the affected part, as applicable, and replace with a part eligible for installation.

(ii) For an affected HPT 1st-stage hub and an affected HPT rotor 1st-stage blade retaining plate with greater than 3,000 CSN but fewer than 4,960 CSN on the effective date of the AD, at the next engine shop visit after accumulating 4,700 CSN or before the affected part exceeds 5,260 CSN, whichever occurs first, remove the affected part, as applicable, and replace with a part eligible for installation.

(iii) For an affected HPT 1st-stage hub and an affected HPT rotor 1st-stage blade retaining plate with 4,960 CSN or greater on the effective date of the AD, at the next engine shop visit or within 300 cycles after the effective date of this AD, whichever occurs first, remove the affected part, as applicable, and replace with a part eligible for installation.

(2) For PW1919G and PW1921G model turbofan engines:

(i) For an affected HPT 1st-stage hub and an affected HPT rotor 1st-stage blade retaining plate with 3,000 CSN or fewer on the effective date of this AD, before the affected part exceeds 4,700 CSN, remove the affected part, as applicable, and replace with a part eligible for installation.

(ii) For an affected HPT 1st-stage hub and an affected HPT rotor 1st-stage blade retaining plate with greater than 3,000 CSN but fewer than 4,700 CSN on the effective date of the AD, at the next engine shop visit after the affected part accumulates 4,700 CSN or before the affected part exceeds 5,000 CSN, whichever occurs first, remove the affected part, as applicable, and replace with a part eligible for installation.

(iii) For an affected HPT 1st-stage hub and an affected HPT rotor 1st-stage blade retaining plate with 4,700 CSN or greater on the effective date of the AD, at the next engine shop visit or within 300 cycles after the effective date of this AD, whichever occurs first, remove the affected part, as applicable, and replace with a part eligible for installation.

(3) For PW1525G and PW1525G-3 model turbofan engines:

(i) Before the affected HPT 1st-stage hub and affected HPT rotor 1st-stage blade retaining plate exceeds 2,800 CSN, respectively, or within 300 cycles after the effective date of this AD, whichever occurs later, remove the affected part, as applicable, and replace with a part eligible for installation.

(ii) [Reserved]

(4) For PW1922G, PW1923G, and PW1923G-A model turbofan engines:

(i) Before the affected HPT 1st-stage hub and affected HPT rotor 1st-stage blade retaining plate exceeds 3,000 CSN, respectively, or within 300 cycles after the effective

date of this AD, whichever occurs later, remove the affected part, as applicable, and replace with a part eligible for installation.

(ii) [Reserved]

(h) Definition

(1) For the purpose of this AD, an “engine shop visit” is the induction of an engine into the shop for maintenance involving the separation of pairs of major mating engine case flanges, except for the following, which do not constitute an engine shop visit:

(i) Separation of engine flanges solely for the purposes of transportation without subsequent maintenance does not constitute an engine shop visit.

(ii) Separation of engine flanges solely for the purpose of replacing the fan without subsequent maintenance does not constitute an engine shop visit.

(2) For the purpose of this AD, a “part eligible for installation” is:

(i) For PW1519G, PW1521G, PW1521G-3, PW1521GA, PW1524G, PW1524G-3, PW1919G, and PW1921G model turbofan engines:

(A) Any HPT 1st-stage hub with P/N 30G5701 with 4,700 CSN or fewer, or with a P/N not listed in this AD.

(B) Any HPT rotor 1st-stage blade retaining plate with P/N 30G1692 with 4,700 CSN or fewer, or with a P/N not listed in this AD.

(ii) For PW1525G and PW1525G-3 model turbofan engines:

(A) Any HPT 1st-stage hub with P/N 30G5701 with 2,800 CSN or fewer, or with a P/N not listed in this AD.

(B) Any HPT rotor 1st-stage blade retaining plate with P/N 30G1692 with 2,800 CSN or fewer, or with a P/N not listed in this AD.

(iii) For PW1922G, PW1923G, and PW1923G-A model turbofan engines:

(A) Any HPT 1st-stage hub with P/N 30G5701 with 3,000 CSN or fewer, or with a P/N not listed in this AD.

(B) Any HPT rotor 1st-stage blade retaining plate with P/N 30G1692 with 3,000 CSN or fewer, or with a P/N not listed in this AD.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in Related Information. You may email your request to: ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(j) Related Information

(1) For more information about this AD, contact Mark Taylor, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7229; fax: (781) 238-7199; email: Mark.Taylor@faa.gov.

(2) For service information identified in this AD, contact Pratt & Whitney, 400 Main Street, East Hartford, CT 06118; phone: (800) 565-0140; fax: (860) 565-5442; email: help24@pw.utc.com; website: <https://fleetcare.pw.utc.com>. You may view this referenced service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (781) 238-7759.

Issued on June 23, 2021.

Lance T. Gant, Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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